

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

Claim 1. (Currently amended) A  $\beta$ -catenin oligonucleotide microchip for detecting  $\beta$ -catenin mutations comprising a plurality of oligonucleotides fixed on the surface of a solid matrix, wherein the oligonucleotides are designed to detect a variety of mutations at mutational hot spots of  $\beta$ -catenin gene those of SEQ ID Nos: 1 to 121.

Claims 2 - 6. (Canceled)

Claim 7. (Withdrawn) A manufacturing process of the  $\beta$ -catenin oligonucleotide microchip of claim 1, comprising  
1) mixing each of the oligonucleotides in a micro spotting solution and distributing to a well plate;  
2) spotting the oligonucleotides on the surface of a solid matrix using a

microarrayer;

- 3) fixing the oligonucleotides on the solid matrix surface and washing;
- 4) denaturing the fixed oligonucleotides by soaking the solid matrix in 95 °C water, and then, treating the solid matrix with a sodium borohydride solution; and
- 5) washing and drying the solid matrix.

Claim 8. (Withdrawn) The manufacturing process of claim 7, wherein each of the oligonucleotides used in step (1) has a 12 carbon spacer with 5' amino modification.

Claim 9. (Withdrawn) The manufacturing process of claim 7, wherein the solid matrix of step (2) is a glass, modified silicone, plastic cassette or polymer plate.

Claim 10. (Withdrawn) The manufacturing process of claim 9, wherein the solid matrix is coated with an aldehyde or amine.

Claim 11. (Withdrawn) The manufacturing process of claim 7, each

oligonucleotide spot of step (2) is of circular shape with a diameter ranging from 100 to 500  $\mu$ m.

Claim 12. (Withdrawn) The manufacturing process of claim 11, the oligonucleotide spots of step (2) are arranged in multiple column and rows of intervals of 200 to 800  $\mu$ m.

Claim 13. (Withdrawn) A method for detecting the  $\beta$ -catenin mutation using the  $\beta$ -catenin oligonucleotide microchip of claim 1, comprising

- 1) preparing a fluorescent dye-labeled DNA sample from the blood of a subject patient;
- 2) reacting the labeled DNA sample with oligonucleotide spots on the  $\beta$ -catenin oligo chip;
- 3) washing the reacted oligo chip to remove unbound sample DNA;
- 4) detecting the mode of hybridization of specific oligonucleotide spots using a fluorescence reader; and
- 5) examining the presence of gene mutation.

Claim 14. (Withdrawn) The method of claim 13, wherein the

fluorescent dye of step (1) is selected from the group consisting of Cy5, Cy3, Texas Red, Fluorescein and Lissamine.

Claim 15. (Withdrawn) The method of claim 13, wherein the reaction of step (2) is performed in a 45~60 °C incubator saturated with water vapor for 3~9 hours.

Claim 16. (Withdrawn) A manufacturing process of the  $\beta$ -catenin oligonucleotide microchip of claim 2, comprising

- 1) mixing each of the oligonucleotides in a micro spotting solution and distributing to a well plate;
- 2) spotting the oligonucleotides on the surface of a solid matrix using a microarrayer;
- 3) fixing the oligonucleotides on the solid matrix surface and washing;
- 4) denaturing the fixed oligonucleotides by soaking the solid matrix in 95 °C water, and then, treating the solid matrix with a sodium borohydride solution; and
- 5) washing and drying the solid matrix.

Claim 17. (Withdrawn) A manufacturing process of the  $\beta$ -catenin oligonucleotide microchip of claim 3, comprising

- 1) mixing each of the oligonucleotides in a micro spotting solution and distributing to a well plate;
- 2) spotting the oligonucleotides on the surface of a solid matrix using a microarrayer;
- 3) fixing the oligonucleotides on the solid matrix surface and washing;
- 4) denaturing the fixed oligonucleotides by soaking the solid matrix in 95 °C water, and then, treating the solid matrix with a sodium borohydride solution; and
- 5) washing and drying the solid matrix.

Claim 18. (Withdrawn) A manufacturing process of the  $\beta$ -catenin oligonucleotide microchip of claim 4, comprising

- 1) mixing each of the oligonucleotides in a micro spotting solution and distributing to a well plate;
- 2) spotting the oligonucleotides on the surface of a solid matrix using a microarrayer;
- 3) fixing the oligonucleotides on the solid matrix surface and washing;

4) denaturing the fixed oligonucleotides by soaking the solid matrix in 95 °C water, and then, treating the solid matrix with a sodium borohydride solution; and

5) washing and drying the solid matrix.

Claim 19. (Withdrawn) A manufacturing process of the  $\beta$ -catenin oligonucleotide microchip of claim 5, comprising

- 1) mixing each of the oligonucleotides in a micro spotting solution and distributing to a well plate;
- 2) spotting the oligonucleotides on the surface of a solid matrix using a microarrayer;

- 3) fixing the oligonucleotides on the solid matrix surface and washing;
- 4) denaturing the fixed oligonucleotides by soaking the solid matrix in 95 °C water, and then, treating the solid matrix with a sodium borohydride solution; and
- 5) washing and drying the solid matrix.

Claim 20. (Withdrawn) A manufacturing process of the  $\beta$ -catenin oligonucleotide microchip of claim 6, comprising

- 1) mixing each of the oligonucleotides in a micro spotting solution and distributing to a well plate;
- 2) spotting the oligonucleotides on the surface of a solid matrix using a microarrayer;
- 3) fixing the oligonucleotides on the solid matrix surface and washing;
- 4) denaturing the fixed oligonucleotides by soaking the solid matrix in 95 °C water, and then, treating the solid matrix with a sodium borohydride solution; and
- 5) washing and drying the solid matrix.